

# 9912

Diagram No. 4115-2

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

## DESCRIPTIVE REPORT

Type of Survey ..... Hydrographic  
Field No. .... FA-80-1-80  
Office No..... H-9912

### LOCALITY

State ..... Hawaii  
General Locality ..... Island of Hawaii  
Locality ..... Offshore Northeast Coast

19 80

CHIEF OF PARTY  
CDR A.J. Patrick

### LIBRARY & ARCHIVES

DATE ..... September 24, 1982

☆U.S. GOV. PRINTING OFFICE: 1980-766-230

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TO SIGN OFF SEE  
RECORD OF APPLICATION TO CHARTS"

HYDROGRAPHIC TITLE SHEET

H-9912

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

FA-80-1-80

State HAWAII

General locality HAWAII ISLAND Island of Hawaii

Locality OFFSHORE NORTH EAST COAST

Scale 1:80,000 Date of survey October 15-20, 1980

Instructions dated August 4, 1980 Project No. OPR-T126-RA, FA-80

Vessel NOAA Ship FAIRWEATHER S220 (2020)

Chief of party CDR A. J. Patrick

Surveyed by LCDR A.J. Pickrell, LCDR D.C. Boutle, LT T. Baxter, LTJG V.D. Ross,  
LTJG C. P. Hancock, ENS P. E. Pagnato, ENS A. F. Trimble

Soundings taken by echo sounder, hand lead, pole Ross 5000 Fineline, FDO-Western, & Raytheon PDP  
System

Graphic record scaled by Ship's Personnel

Graphic record checked by CST E. Krick, C. Frost, A. Garzelli

Protracted by \_\_\_\_\_ Automated plot by PMC Xynetics Plotter

Verification by Marine Surveys Division

Evaluation by Gordon E. Kay

Soundings in fathoms feet at MLW MLLW

REMARKS: All times for survey are GMT.

AWOIS/SWRF 2/28/86 AAA

PROGRESS SKETCH  
 OPR-TI26-FA-80  
 NOAA SHIP FAIRWEATHER S-220  
 HAWAII ISLAND, HAWAII  
 CAPT. A. J. PATRICK, CMDG  
 SCALE OF NOS CHART 19320  
 -1980-

	SEPT	OCT	NOV
LNM SOUNDING LINE	36	1031	594
SQ NM SOUNDING LINE	3	1237	44
BOTTOM SAMPLE	0	92	75
NANSEN CTD CAST	0	4	3
LNM FIELD EDIT	20	20	0



- △ STA. ESTABLISHED
- ⊙ STA. RECOVERED
- ⊖ TIDE GAGE
- ⊕ NANSEN CTD CAST

STATIONS  
 RECOVERED & ESTABLISHED

SEPTEMBER

- 1 KAYDIST, 1980
- 2 HAIKU, 1877
- 3 COOK HGS, 1949
- 4 HONOHINA, 1877
- 5 WAHINII, 1980  $M/R$
- 6 OLAA STACK
- 7 KEAAU, 1949
- 8 KALOLI 2, 1949 - RM 3, 1980  $M/R$
- 9 KALOLI 2, 1949  $M/R$
- 10 KALOLI 2, 1949 - RM 4, 1980  $M/R$
- 11 POOL, 1980  $M/R$
- 12 OPIHI RK, 1980  $M/R$
- 13 CAPE KUMUKAHI LT.
- 14 KAYDIST RM 1, 1980 RAYDIST
- 15 KALOLI 2, 1949 - RM 5, 1980 RAYDIST  $M/R$

OCTOBER

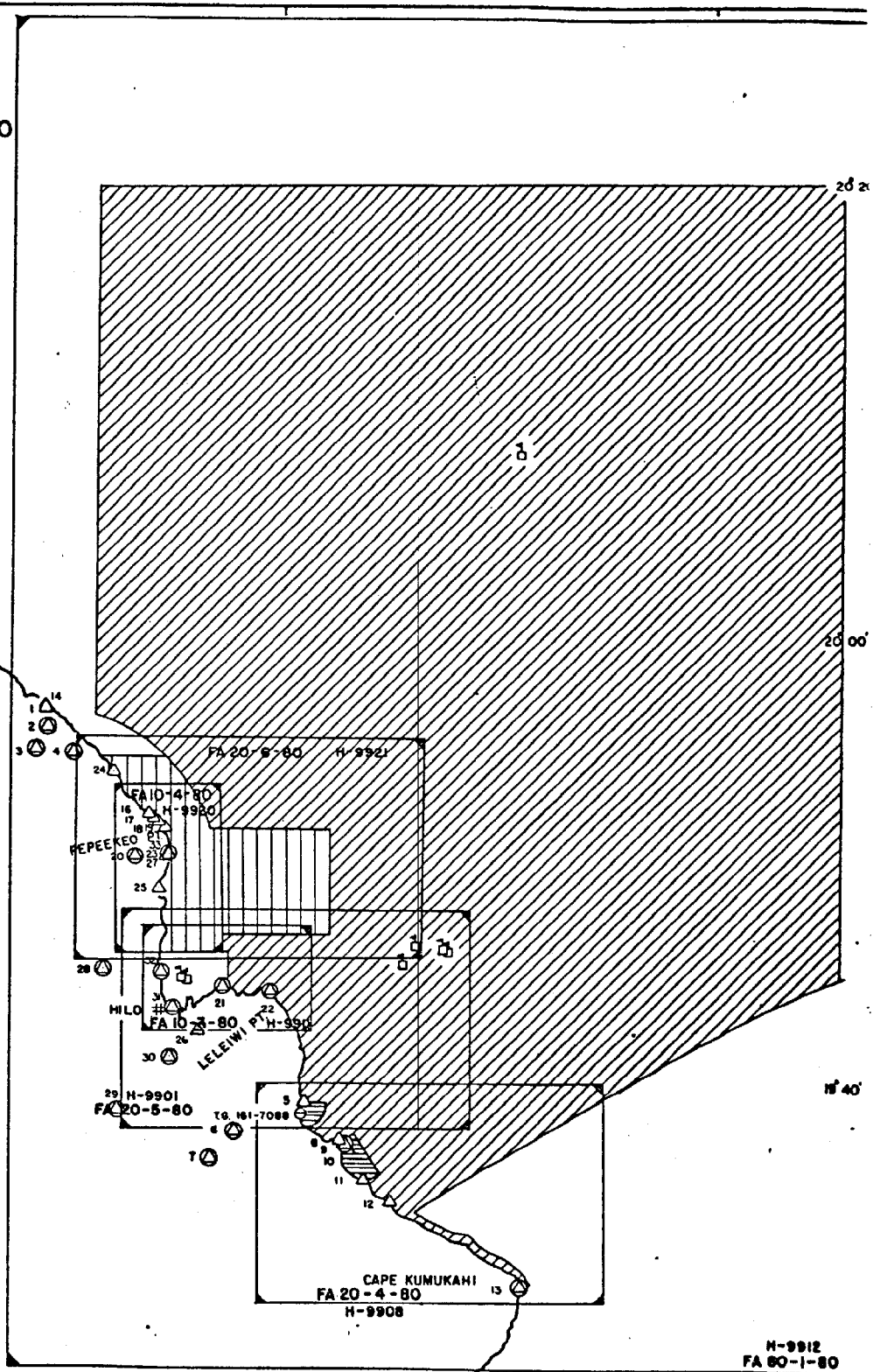
- 16 KAHOLA, 1980  $M/R$
- 17 WAIIEHU, 1980  $M/R$
- 18 HAIPO, 1980  $M/R$
- 19 LOEA, 1980  $M/R$
- 20 ALALA HGS, 1877  $M/R$
- 21 KEOKEA 2, 1951  $M/R$
- 22 LELEIWI USGS, 1912  $M/R$

NOVEMBER

- 23 PEPEEKEO, 1980
- 24 HAKALAU, 1980  $M/R$
- 25 ONOMEA, 1980
- 26 GENERAL LYMAN FIELD STACK

- 27 PEPEEKEO STACK
- 28 KAIWIKI NEW USGS, 1949
- 29 WAIAKEA MAUKA USGS, 1949
- 30 WAIAKEA NEW USGS, 1949

- 31 COCONUT POINT LIGHT  $M/R$
- 32 PAUKAA POINT LIGHT
- 33 PEPEEKEO POINT LIGHT  $M/R$



155° 20'

155° 00'

154° 40'

60

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY H-9912 (FA 80-1-80)  
Scale 1:80,000, Year 1980  
NOAA Ship FAIRWEATHER

Commanding Officer: CDR Walter F. Forster

A. PROJECT

This hydrographic survey was conducted in accordance with: Project Instructions OPR-T126-RA, FA-80, Hawaii, Hawaiian Islands, dated 4 August 1980; Supplements to Instructions, Changes No. 1, dated 8 August 1980, No. 2, dated 15 August 1980, No. 3, dated 9 September 1980, No. 4, dated 28 November 1980; and Data Requirements Letter, dated 11 April 1979. The PMC OORDER and the Hydrographic Manual, Fourth Edition are also applicable. *Change No. 4 dated after survey.*

B. AREA SURVEYED

The area covered by this survey includes that portion of the Pacific Ocean bounded to the north by Latitude 20°20'N, to the east by Longitude 154°34'W, to the west by Longitude 155°08'W, or the junctions with contemporary surveys H-9921 (FA 20-6-80), H-9909 (FA 20-5-80), and H-9908 (FA 20-4-80), and to the south by the junction with H-8992, a 1968 survey. The survey was commenced on 15 October 1980 (JD 289/290) and completed on 20 October 1980 (JD 294).

C. SOUNDING VESSELS

All soundings were obtained by the NOAA Ship FAIRWEATHER (EDP No. 2020, hull S220), as were all bottom samples. There were no unusual vessel configurations or problems.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Soundings were taken using the Ross 5000 Fineline fathometer, and also the EDO-Western-Raytheon precision depth recording system. The former was used in depths of less than 200 fathoms where junctions were being made with launch work inshore and similar fathometers were in use. The latter was used in all depths greater than 200 fathoms. The agreement between the two systems was very good, generally within one fathom, except on steep gradients where the different beam widths caused the depths to differ by as much as 22 fathoms in depths of 145 fathoms.

No unusual faults were experienced with either system. Serial numbers of the sounding equipment used are as follow:

<u>Days</u>	<u>System</u>	<u>Digitizer</u>	<u>Analog</u>	<u>Inverter</u>	<u>Transceiver</u>
290-294	EDO	203	172		317
	Ross	1036	1047	1103	1048

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## Corrections

1. Velocity of Sound - Data from three Nansen casts were used to calculate velocity corrections for the smooth sheet. These corrections were applied to the final field sheet submitted with this report, but not to the semi-smooth sheet. An abstract of corrections to echo soundings in the appendix contains velocity correctors. More information can be found in the Corrections to Echo Soundings Report OPR-T126-FA-80. ✓
2. Instrument Initial - The initial setting on the Ross Fineline fathometer was set to zero and monitored by the operators during surveying operations, and the analog was reinitialed when necessary. The EDO-Raytheon system had electronic scale markings so no problem of initial variations existed with this system. ✓
3. Phase Calibrations - The phase calibration for the Ross Fineline fathometer was checked before and after operations by the ET department, and during operations by fathometer operators. The EDO-Raytheon system had electronic scale markings, thus no capability for phase calibration. However, the whole system was checked out by the ET department before and after operations. Scale checks were made periodically to verify that the correct scale settings were used. ✓
4. Corrections Determined from Direct Comparison - No direct comparisons were carried out since all surveying was done in depths of over 100 fathoms, and the effective depths of the ship's transducers were available from ship's plans. ✓
5. Settlement and Squat Corrections for dynamic draft changes were not observed or applied. ✓
6. Predicted tide corrections were all less than 0.5 fathoms and were not applied to this survey. ✓

## E. HYDROGRAPHIC SHEETS

Due to the size limitations of the shipboard plotters, this survey was divided into three field sheets: FA 80-1N-80, FA 80-1C-80 and FA 80-1S-80. The field sheets were constructed on board the ship on mylar using RK201, the PDP/8e computer, and the Complot plotter, serial number 6166-22. The parameters for these sheets are attached at the end of this report. There are no irregularities in projection, scale or other properties. The field records will be sent to the PMC Processing Division for verification and smooth plotting. ✓

## F. CONTROL STATIONS

Horizontal control for this survey was provided by existing and newly established triangulation stations and traverse stations which were located to Third Order Class I standards. There were no unconventional methods used nor anomalies in closure. Old Hawaiian Datum was the datum used. The following is a list of the control stations on the sheet that have been monumented and described. ✓

Kaydist, 1980	Hilo Harbor Breakwater Lt, 1980
Honohina, 1877	Keokea 2, 1951
Hakalau, 1980	Leleiwi USGS, 1912
Kahola, 1980	Wahinii, 1980
Waiehu, 1980	Olaa Sugar Co. Stack, 1949
Haipo, 1980	Kaloli 2, 1949
Loea, 1980	Pool, 1980
Pepeekeo Pt Lt, 1949	Opihi Rock, 1980
Pepeekeo Stack, 1980	Fix, 1968 - 1980
Alala HGS, 1877	Cape Kumukahi Lt, 1949
Paukaa Pt Lt, 1975	
Kaiwiki New USGS, 1949	
Hilo Sugar Co. Stack, 1949	
Cocconut Pt Lt, 1976	
Hilo Harbor Commissioners Tank, 1951	

See Horizontal Control Report, OPR-T126-FA-80, for information on these and other stations used on this survey, and for detailed descriptions of the geodetic methods used.

G. HYDROGRAPHIC POSITION CONTROL

Sounding line position control was provided by utilization of the range/range method. Range measurements were provided by Raydist and by a Motorola Mini Ranger III system. The configuration of the shore stations provided good control geometry over the whole area of the survey. Details of the positioning equipment used aboard the ship are as follow:

<u>Equipment</u>	<u>Serial No.</u>	<u>J.D.</u>
Raydist Navigator	119	290 - 294
Mobile Transmitter	26	290 - 294
Interface	22	290 - 294
Strip Chart Recorder	11315	290 - 294
Mini Ranger Console/RT	703	293 - 294

Three stations were used for Raydist range measurements. Details are as follow:

<u>Station No.</u>	<u>Station Name</u>	<u>Color Code</u>	<u>Transmitter Serial No.</u>	<u>J.D.</u>
102	Fix, 1968-1980	Red	124	290 - 292
101	Kaydist RM1, 1980	Green	125	290 - 294
100	Kaloli 2 RM5, 1980 1949	Red	124	293 - 294

Two stations, 201 and 207, were used for Mini Ranger position control. Stations 211 and 212 were also used but only for Mini Ranger calibration of Raydist. Details are as follow:

<u>Station No.</u>	<u>Station Name</u>	<u>Transponder Code</u>	<u>J. D.</u>
201	Opihi Rock, 1980	703	293 - 294
207	Wahinii RMI, 1980	704	293 - 294
211	Lelewi USGS, 1912	702	Calibration only
212	Alala HGS, 1877	701	Calibration only

The Raydist system was calibrated before surveying commenced, at convenient times while surveying was taking place, and on completion of surveying. Three Mini Ranger ranges were used for each calibration fix, and the mean value from at least three fixes with small inverses was used as the observed calibration corrector for each pattern.

The Mini Ranger III system was checked by sextant resection fixes with check angles. Of four fixes, two were in good agreement with baseline calibration values of correctors, differing by less than 5 meters. The final two were taken in failing light and produced larger correctors, but these were still in adequate agreement for a 1:80,000 survey.

Two Mini Ranger baseline calibrations were performed in conjunction with this survey. An initial calibration was conducted in Hilo, Hawaii, on 9 October 1980. This calibration established the electronic corrector values and minimum signal strength values which were utilized throughout the survey. A second baseline calibration was conducted on 28 October 1980 in Hilo, Hawaii, and it indicated a drift of two meters on each code used. The two sets of values have been averaged to obtain the final correctors which were applied on the final field sheet and should be used for smooth plotting.

Refer to the Electronic Control Report, OPR-T126-FA-80, for further information pertaining to electronic positioning control and computations of baseline correctors.

Both the Raydist and Mini Ranger antennas were on the fore mast, and both the Ross and the EDO system transducers were mounted on the skag, 33 meters aft of the antennas. An ANDIST distance of +33 meters was applied for the final field sheets and should be applied in all future processing.

#### H. SHORELINE

The shoreline has been covered by contemporary larger scale surveys carried out inshore of this survey. The shoreline on the final field sheet is approximate and taken from a 1:80,000 scale blowup of chart 19320, 12th Edition.

#### I. CROSSLINES

A total of 86.2 miles of crosslines were run, or 13.4% of the main scheme mileage. The crosslines are in excellent agreement with the main scheme lines, agreeing within 1 fathom in flatter, more shallow areas. Most of the survey is in very deep water with steep bottom slopes. The crosslines there agree within 1 to 5 fathoms up to the deepest depths over 3000 fathoms.

J. JUNCTIONS

This survey junctions to the south with H-8991 and H-8992, 1:30,000, 1968, and to the west with contemporary surveys H-9908, H-9909 and H-9921, all 1:20,000 scale, 1980. Both H-8991 and H-8992 overlap the new survey by approximately 1/2 mile on the southern limit. The depths and contours agree well for the whole junction, generally within 5 fathoms, even in areas of steeper gradient, and in depths of over 2000 fathoms. The agreement between the contemporary surveys, H-9908, H-9909 and H-9921, and this survey is very good; the depths agreeing to within 1-2 fathoms in areas of regular seabed, although a maximum discrepancy of 27 fathoms exists on a steep gradient off Station Pool. The larger discrepancies can be explained by slight positional differences, the differing beam widths of the echo sounders, and/or angular vessel attitude (rolling) at the time of the soundings. ✓

K. PRIOR SURVEYS

No prior surveys exist in the area covered by this survey, nor are there any presurvey review items. *see Vessels Report section 6* ✓

L. CHART COMPARISON

A comparison was made between this survey and chart 19320, 12th Edition, dated June 17, 1978. A considerable difference (as large as 550 fathoms) was found between some of the charted depths and those obtained in this survey, while there was excellent agreement (within 2 fathoms) in other cases. However, the non-existence of prior surveys of the area would indicate that the charted depths have come from track lines of various ships while on passage, and this would be consistent with the variations found in the comparison. By moving the positions of charted soundings by a mile or less, good agreement can be produced in even the worst cases. ✓

M. ADEQUACY OF SURVEY *see Vessels Report section 7*

This survey is adequate to supersede charted detail in the area of the survey. ✓ ✓

N. AIDS TO NAVIGATION

No floating aids exist in the survey area. Coastline and inshore areas are covered by contemporary surveys on a larger scale. ✓ ✓

O. STATISTICS

<u>Vessel</u>	<u>Position</u>	<u>Miles of Hydrography</u>	<u>Square Miles of Hydrography</u>
2020	503	728	1210

No. of Bottom Samples: 7 ✓

Tide Stations: Hilo - 161 - 7760  
Shipman Ranch - 161 - 7088

Temperature and Salinity Casts: 3 Nansen casts



P. MISCELLANEOUS

Greenwich Mean Time (+9) was used throughout the survey. ✓

Q. RECOMMENDATIONS

None. ✓

R. AUTOMATED DATA PROCESSING

The following programs were used to process the data of this survey:

<u>Program Number</u>	<u>Version Date</u>	<u>Description</u>
RK111	1/30/76	Range/Range real time plot
RK201	4/18/75	Grid Constructions
RK211	1/30/76	Range/Range non-real time plot ✓
RK300	2/10/76	Utility Computations
RK330	5/04/76	Reformat and Format check
RK530	5/10/76	Velocity Computations
RK561	2/19/75	Geodetic Calibration
AM602	5/21/75	Editor

S. REFERRAL TO REPORTS

The following reports contain information related to this survey:

Horizontal Control Report	OPR-T126-FA-80
Electronic Control Report	"
Coast Pilot Report	"
Geographic Names Report	"
Corrections to Echo Soundings Report	"

J. Approval Sheet

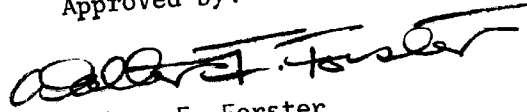
The commanding officer examined the survey progress and records daily.  
The survey is complete and adequate to supersede all charted data in  
the survey area.  
Captain A. J. Patrick was commanding officer at the time of this survey  
but was transferred prior to submission of this report.

Submitted by:



D. C. Boutle  
LCDR, Royal Navy

Approved by:



Walter F. Forster  
CDR, NOAA

HAWAII ISLAND SIGNAL LISTING

001  
002

~~003 KALO LI 2 1949, RM 5 1980 FAIRWEATHER 1980~~

~~004 100 3 19 37 29359 154 56 57468 250 0007 330040~~

005

006 KAYDIST RM 1 1980 FAIRWEATHER 1980

007 101 5 19 56 58839 155 10 50157 250 0072 330040

008

009 FIX 1966 RAINIER 1980

010 102 0 19 31 09221 154 48 47412 250 0008 330040

011

~~012 KALO LI 2 1949, RM 5 1980 FAIRWEATHER 1980~~

~~013 110 4 19 37 29359 154 56 57468 250 0007 000000~~

014

015 OPIHI ROCK 1980 FAIRWEATHER 1980

016 201 5 19 34 54763 154 54 52388 250 0007 000000

017

~~018 POOL 1980 FAIRWEATHER 1980~~

~~019 202 5 19 35 53298 154 56 02403 250 0005 000000~~

020

~~021 KALO LI 2 1949, RM 4 1980 FAIRWEATHER 1980~~

~~022 203 7 19 37 21659 154 56 53003 250 0010 000000~~

023

~~024 KALO LI 2 1949 QUAD 191544 RSN 1005~~

~~025 204 5 19 37 29474 154 56 56479 250 0007 000000~~

026

~~027 KALO LI 2 1949, RM 3 1980 FAIRWEATHER 1980~~

~~028 205 3 19 37 34361 154 57 02028 250 0007 000000~~

029

~~030 WAHINII 1980 FAIRWEATHER 1980~~

~~031 206 0 19 37 21635 154 58 54865 250 0004 000000~~

032

033 WAHINII RM 1 1980 FAIRWEATHER 1980

034 207 5 19 39 21412 154 58 55281 250 0004 000000

035

~~036 OLA'A SUGAR CO. STACK 1949 QUAD 191551 RSN 1125~~

~~037 208 6 19 38 02656 155 02 01518 139 0000 000000~~

038

~~039 CAPE KUMUKANI LT 1949-1980 QUAD 191544 RSN 1002 RAINIER 1980~~

~~040 209 3 19 31 09628 154 48 49069 139 0000 000000~~

041

~~042 KEOKEA 2 1951 QUAD 191551 RSN 1092~~

~~043 210 0 19 44 25398 155 02 42676 250 0003 000000~~

044

045 LELEIWI USGS, 1912 QUAD 191551 RSN 1104

046 211 0 19 44 21840 155 00 22968 250 0006 000000

047

048 ALALA 1877 QUAD 191551 RSN 1007

049 212 0 19 50 18781 155 06 42654 250 0231 000000

FIELD TIDE NOTE

OPR-T126-FA-80

Field tide reduction of soundings was based on predicted tides from Honolulu, Hawaii, corrected to Hilo, Hawaii, and were interpolated by PDP 8/E computer utilizing AM500. All times of both predicted and recorded tides are GMT.

Two tide gages were utilized for this project.

<u>SITE</u>	<u>LOCATION</u>	<u>PERIOD</u>
Hilo, #161-7760 (ETG)	19°44'00"N ✓ 155°03'31"W ✓	Permanent Secondary Gage
Shipman Ranch, #161-7088 (ADR)	19°38'50"N ✓ 154°59'06"W ✓	63 day 16 Sep-17 Nov 1980

HILO

This gage was leveled by RAINIER personnel on September 5 and November 25, 1980 (see Field Tide Note OPR-T126-RA-80). FAIRWEATHER personnel met with the tide observer on September 19 to insure that he contact the ship immediately if the gage should malfunction. Personnel from the Pacific Tide Party visited the Hilo Gage on November 2-5. Leveling and routine maintenance was performed.

SHIPMAN RANCH

Five bench marks were set on 15 September 1980. On 16 September, the tide staff, floatwell and gage were installed. Levels were run to the staff and the gage was started at 234800 GMT. One hour later, it was discovered that the gage had double punched. It was then restarted at 004800 GMT, 17 September. Sometime between the next observation at 223603 GMT, 17 September, and 191815 GMT, 19 September, the gage lost 2 hours 5 minutes 45 seconds. The gage was still punching on the correct six-minute intervals and there is no place on the tape that indicates that the punch had jammed or stopped. The gage was restarted at 192405 GMT, 19 September. The following day at 184810 GMT, 20 September, the gage was again found to be slow by 4 hours 42 minutes 10 seconds. Again, there are no double punches or indications of a jammed punch and it was still punching nearly exactly on the proper six-minute increments. (No hydrography or field edit was conducted during these periods.) The tape was cut at this point. A new motor and punch block were installed; the advance pawl was adjusted and various moving parts were lubricated. The gage was restarted at 201800 GMT, 20 September. The gage ran well throughout the remainder of the installation. The gage was stopped at 190630 GMT, 26 September, at which time the intake on the floatwell was changed from 3/8" diameter to 3/16" diameter in order to improve damping of the swell. The gage was restarted at 200000 GMT, 26 September. The height of the floatwell changed slightly; so two separate average gage-staff differences should be used for the observation prior to the orifice change and for those

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following this change. Field edit, but no hydrography, was conducted during this down time. Correctors will have to be interpolated for this period.

The mean gage-staff differences were:

7.08 feet                    234800, JD 260 - 190630, JD 270

6.92 feet                    200000, JD 270 - 184338, JD 322

Leveling to the staff was performed on 16 September and 17 November 1980. The elevations determined compared very closely between the two runs with a maximum discrepancy of .004 m.

#### ZONING

Data collected by the Hilo tide gage (#161-7760) will be used in determining correctors for all of the surveys and field edit T-sheets: H-9908, H-9909, H-9911, H-9912, H-9920, H-9921, TP-00822, TP-00070, T-13261, and TP-00069.

Data collected by the Shipman Ranch tide gage (#161-7088) will be used in determining correctors for the following surveys and field edit T-sheets: H-9908, H-9909, H-9912, H-9911 (as far west as 155°01.0'W), H-9921 (as far west as 155°01.0'W), TP-00822, TP-00070 (as far west as 155°01.0'W).

U.S. DEPARTMENT OF COMMERCE  
October 8, 1981 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Pacific Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 161-7760 Hilo, HI  
161-7088 Shipman Ranch, HI

Period: October 16-19, 1980

HYDROGRAPHIC SHEET: H-9912

OPR: T-126

Locality: East Coast of Hawaii

Plane of reference (mean lower low water): 161-7760 = 3.54 ft.  
161-7088 = 0.82 ft.

Height of Mean High Water above Plane of Reference is 161-7760 = 1.99 ft.  
161-7088 = 1.80 ft.

REMARKS: Recommended Zoning:

1. North of latitude  $19^{\circ}43.0'$  zone direct on 161-7760, Hilo, Hawaii.
2. South of latitude  $19^{\circ}43.0'$  zone direct on 161-7088, Shipman Ranch, Hawaii.

*Donald Carrier*  
for Chief, Datums and Information Branch



VELOCITY CORRECTOR LISTING for VESSEL 2020

001 000178 0 0010 0001 001 202000 000000  
002 000197 0 0011  
003 000243 0 0015  
004 000326 0 0020  
005 000419 0 0025  
006 000515 0 0030  
007 000610 0 0035  
008 000710 0 0040  
009 000821 0 0045  
010 000930 0 0050  
011 001027 0 0055  
012 001133 0 0060  
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020 003200 0 0100  
021 003550 0 0105  
022 003900 0 0110  
023 004265 0 0115  
024 004625 0 0120  
025 004975 0 0125  
026 005325 0 0130  
027 005625 0 0135  
028 005850 0 0140  
029 006575 0 0150  
030 007150 0 0160  
031 007525 0 0170  
032 007825 0 0180  
033 008075 0 0190  
034 008400 0 0200  
035 008825 0 0210  
036 009325 0 0220  
037 009850 0 0230  
038 011550 0 0280  
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041 017300 0 0430  
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052 029000 0 0980  
053 029850 0 1030  
054 030700 0 1080



TC/TI TAPE PRINTOUT FOR VESSEL 2020, HAWAII 1980 SURVEYS

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002 235959 0 0022 0001 322 202000 000000



GEOGRAPHIC NAMES

H-9912

Name on Survey	A ON CHART NO. 19320 B ON PREVIOUS SURVEY NO. H-2461 C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G RAND McNALLY ATLAS H U.S. LIGHT LIST K										
	A	B	C	D	E	F	G	H	K		
HAWAII	X										1
HILO	X										2
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Approved:

*Chris E. Harrington*

Chief Geographer - N/CG2x5

18 March 1983

HYDROGRAPHIC SURVEY STATISTICS

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	6			
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS, ARC, EXCESS	2			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	X		1 Row			
VOLUMES						
BOXES			1 - smooth Plo - strip charts			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			513
POSITIONS CHECKED		513	513
POSITIONS REVISED		-0-	-0-
SOUNDINGS REVISED		17	17
SOUNDINGS ERRONEOUSLY SPACED		-0-	-0-
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		-0-	-0-
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2	*(VER)/(EVAL)	2
VERIFICATION OF CONTROL		11/00	11
VERIFICATION OF POSITIONS		70/00	70
VERIFICATION OF SOUNDINGS		111/00	111
COMPILATION OF SMOOTH SHEET		26/00	26
APPLICATION OF TOPOGRAPHY		00/00	0
APPLICATION OF PHOTOBATHYMETRY		00/00	0
JUNCTIONS		08/00	8
COMPARISON WITH PRIOR SURVEYS & CHARTS		00/25	25
VERIFIER'S REPORT		21/17	38
OTHER		00/10	10
<b>TOTALS</b>	<b>2</b>	<b>247/52</b>	<b>301</b>

Pre-Verification by <b>James S. Green</b>	Beginning Date 5/14/81	Ending Date 5/14/82
Verification by <b>Robert N. Mihailov</b>	Evaluation by <b>Gordon E. Kay</b>	Beginning Date 10/2/81 5/20/82
Verification Check by <b>Stanley H. Otsubo, James S. Green</b>	Time (Hours) 38	Date 8/24/82
Marine Center Inspection by	Time (Hours)	Date
Quality Control Inspection by <b>LISA Quinlan</b>	Time (Hours) 50	Date 15 Dec 83
Requirements Evaluation by	Time (Hours)	Date

\*Time in this column is for Verification (VER) and Evaluation (EVAL).

P. Thompson 3 hours, Fiscal. 16, 1983

REGISTRY NO. H-9912

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE \_\_\_\_\_ TIME REQUIRED \_\_\_\_\_ INITIALS \_\_\_\_\_

REMARKS:

PACIFIC MARINE CENTER  
VERIFICATION/EVALUATION REPORT

REGISTRY NO: H-9912

FIELD NO: FA-80-1-80

Hawaii, Hawaii Island, Offshore North East Coast

SURVEYED: October 15 - 20, 1980

SCALE: 1:80,000

PROJECT NO: OPR-T126-RA,  
FA-80

SOUNDINGS: Ross 5000 Fineline  
EDO - Western  
Raytheon PDR

CONTROL:  
Range/Range  
Hasting Raydist  
Motorola Mini-Ranger III

Chief of Party.....CDR A. J. Patrick

Surveyed by.....LCDR A. J. Pickrell  
LCDR D. C. Boutle  
LT T. Baxter  
LTJG V. D. Ross  
LTJG C. P. Hancock  
ENS P. E. Pegnato  
ENS A. F. Trimble

Automated Plot by.....PMC Xynetics Plotter

Verified by.....Robert N. Mihailov

Evaluated by.....Gordon E. Kay

I. INTRODUCTION

NOTE: This survey has been processed utilizing a procedure developed to work in conjunction with the Verification Branch realignment, which established an evaluation process. The survey data was first verified and a smooth sheet compiled by a verifier. Then an evaluator reviewed the work of the verifier, made the necessary comparisons with prior surveys and charts and wrote the Verification/Evaluation Report.

NOAA Ship FAIRWEATHER (S-220) conducted this hydrographic survey in a continuing effort to modernize the hydrographic information around the Hawaiian Islands. H-9912 is an offshore survey situated along the northeast coast of the Island of Hawaii and was conducted from October 15 through October 20, 1980. The area surveyed encompasses the 100 fathom contour as the inshore limit and extends seaward generally reaching depths of 3000 fathoms.

Projection parameters used to prepare the field sheet have been revised to center the hydrography on the smooth sheet. Smooth sheet parameters and all other correctors used by the Pacific Marine Center (PMC) to reduce the sounding data are appended in the smooth printout. Field tide reductions are based on Honolulu, Hawaii, corrected to Hilo, Hawaii. See Field Tide Note, Ship Descriptive Report 1980, for an adequate description of tides. Smooth sheet reduced soundings are based on observed tides at the following:

Hilo, Hawaii (161-7760) latitude 19°44'00"N, longitude 155°03'31"W.

Shipman Ranch, Hawaii (161-7088) latitude 19°38'50"N, longitude 154°59'06"W

## 2. CONTROL AND SHORELINE

No unusual problems were encountered during verification of positioning or control. See Horizontal Control Report, Electronic Control Report for OPR-T126-FA-80 and Ship's Descriptive Report, paragraphs F and G for an adequate discussion of both. The smooth sheet was plotted using Preliminary Adjusted Field Position on the Old Hawaiian datum.

H-9912 is an offshore survey with no shoreline within its limits.

## 3. HYDROGRAPHY

a. Main scheme sounding lines and crosslines are in very good agreement. Differences between soundings at points of coincidence are within  $\pm 2$  fathoms in depths ranging from 200 to 2000 fathoms.

b. Standard depth contours (100 through 3000 fathoms) were easily drawn.

c. The hydrography in this survey is adequate to determine least depths and the bottom configuration.

## 4. CONDITION OF SURVEY

The accompanying overlays and reports adequately conform to the Hydrographic Manual.

## 5. JUNCTIONS

H-9912 junctions with the following contemporary surveys:

H-8991, 1:30,000 (1968) junctions the south-southeastern limits of H-9912. No problems were encountered in making the junction. Depth contours and junctional note (in red) have been inked on H-9912. *Junction completed during Q.C.*

H-8992, 1:30,000 (1968) junctions the southeastern limits of H-9912. No problems were encountered in making the junction. Depth contours and junctional note (in violet) have been inked on H-9912. *Junction completed during Q.C.*

H-9908, 1:20,000 (1980) is an inshore survey and junctions the south-western limit of H-9912. No problems were encountered in making the junction. Depth contours and junctional note (in orange) have been inked on H-9912.

H-9909, 1:20,000 (1980) is an inshore survey and junctions the western limit of H-9912. No problems were encountered in making the junction. Depth contours and junctional note (in violet) have been inked on H-9912.

H-9921, 1:20,000 (1980) is an inshore survey and junctions the western limit of H-9912. No problems were encountered in making the junction. Depth contours and junctional note (in red) have been inked on H-9912.

H-9974, 1:80,000 (1981) is an offshore survey and junctions the north-western limit of H-9912. This survey has not yet been verified. This junction has not been made; the junction note is in pencil on H-9912. *Junction completed during Q.C.*

## 6. COMPARISON WITH PRIOR SURVEYS

H-9912 was compared with the following prior surveys:

H-2461, 1:40,000 (1900). Only one sounding (102 fathoms) from this prior falls within the limits of H-9912. This sounding does not compare well, for the present <sup>survey</sup> reveals depths of 189 to 242 fathoms in this area. This difference is attributed to the positional accuracy of the former. H-9912 is adequate to supersede H-2461 over their common *CONCUR* areas.

H-4655, 1:247,000 (1927). Five soundings from this prior fall within the limit of H-9912. These soundings do not compare well. Differences between the soundings range about 40 to 314 fathoms shoaler. These differences are attributed to the positional accuracy of the former. H-9912 is adequate to supersede H-4655 over their common areas. *CONCUR*

## 7. COMPARISON WITH CHART

a. Hydrography - Chart 19320, 12th Ed., June 17/78 (1:250,000). The charted information originates with the previously discussed prior surveys (see enclosed chartlet), and from unknown sources. Soundings do not compare well; however, it is not likely that the positional accuracy of the charted soundings is comparable to that of H-9912. Therefore, H-9912 is adequate to supersede the charted soundings over their common areas. *CONCUR*  
*Many soundings from Navy Trackline Survey BP 51977 (1954)*



b. Controlling Depths - There are no controlling depths within the limits of this survey.

c. Aids to Navigation - There are no fixed or floating aids within the limits of this survey.

d. The bottom samples consist of brown fine sand, broken shell, brown mud and ooze.

8. COMPLIANCE WITH INSTRUCTIONS

H-9912 complies with the following:

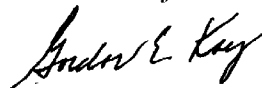
Project Instructions for OPR-T126-RA,FA-80, Hawaii Islands, August 4, 1980.

Change No. 3, Amendment to Instructions, September 9, 1980.

9. ADDITIONAL FIELD WORK

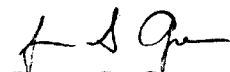
H-9912 is a good hydrographic survey. Additional field work is neither recommended nor required.

Submitted by:



Gordon E. Kay  
Cartographer

Examined and Approved:



James S. Green  
Chief, Verification Branch

APPROVAL SHEET  
FOR  
SURVEY H- 9912

- A. This hydrographic survey has been verified, evaluated and inspected. It meets the requirements of the Hydrographic Manual except as noted in the Verification/Evaluation Report. The automated data file has been updated to reflect the data presented on the smoothsheet.

Date: 8/24/82

Signed: *[Signature]*

Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification/Evaluation Report.

Date: 9/2/82

Signed: *[Signature]*

Title: Chief, Marine Surveys Division



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102

September 3, 1982

TO: C3 - C. William Hayes

FROM: *Charles K. Townsend*  
CPM - Charles K. Townsend

SUBJECT: Administrative Approval, H-9912, Offshore *Northeast* ~~North East~~ Coast,  
Island of Hawaii, Hawaii

The smooth sheet and reports of this survey have been examined and the survey is adequate for charting and to supersede common areas of prior surveys.





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF CHARTING AND GEODETIC SERVICES  
ROCKVILLE, MARYLAND 20852

N/CG242:LQ

October 29, 1984

TO: Roy K. Matsushige *RM*  
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section *QM*

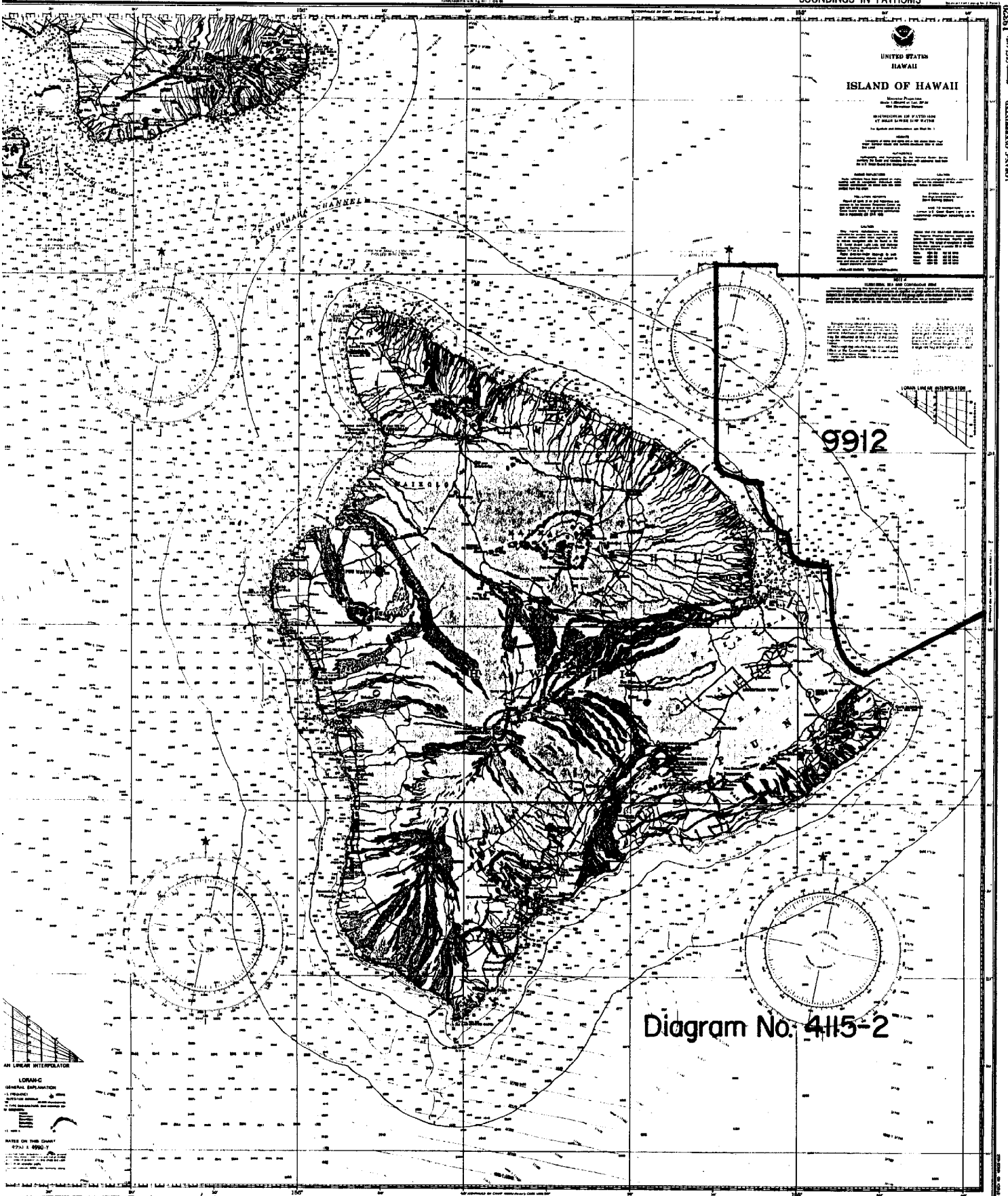
FROM: Lisa Quinlan *Lisa Quinlan*  
Quality Evaluator

SUBJECT: Quality Control Report for Survey H-9912 (1980), Hawaii, Island of  
Hawaii, Offshore Northeast Coast

A quality control inspection of survey H-9912 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, are identified on a one-half scale copy of the survey to be furnished the verifier. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report.

CC:  
N/CG241





**UNITED STATES HAWAII**

**ISLAND OF HAWAII**

Maximum Depth 10,000 Fathoms  
 Minimum Depth 10 Fathoms

INTRODUCTION OF A SYSTEM OF SOUNDINGS IN FATHOMS

1. The soundings in fathoms are shown in black figures.

2. The soundings in meters are shown in red figures.

3. The soundings in fathoms are shown in black figures.

4. The soundings in meters are shown in red figures.

5. The soundings in fathoms are shown in black figures.

6. The soundings in meters are shown in red figures.

7. The soundings in fathoms are shown in black figures.

8. The soundings in meters are shown in red figures.

9. The soundings in fathoms are shown in black figures.

10. The soundings in meters are shown in red figures.

9912

Diagram No. 4115-2

**LODGING**

GENERAL EXPLANATION

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**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF CHARTING AND GEODETIC SERVICES  
ROCKVILLE, MARYLAND 20852

FEB 20 1986

N/CG24x1:DEW

TO: N/MOA - Wesley V. Hull  
N/MOP - Robert L. Sandquist  
FROM: N/CG2 - *J. Austin Yeager*  
SUBJECT: Reports of Compliance for Hydrographic Surveys

I have decided that a special "Report of Compliance" is no longer required for those remaining hydrographic surveys processed under the Verification/Quality Control system in place prior to October 1982. You will no longer receive these reports. Statements made in the Verifier's Reports, modified as necessary by the Quality Control Reports, will suffice with regard to compliance with project instructions.

After their examination of the Descriptive Reports for Automated Wreck and Obstruction Information System (AWOIS) file revisions, Operations Section (N/CG241) personnel will insert a copy of this memorandum into each Descriptive Report to provide appropriate authority for the missing compliance report. In accordance with past practice, we will forward a copy of the Quality Control Report to you for your information.

cc:  
N/CG22 - Nortrup



